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SMALL-QUANTITY-GENERATOR HAZARDOUS-WASTE PRODUCTION AND MANAGEMENT IN FLORIDA

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(Received September 1988)

Data are presented on the production and management of hazardous waste by approximately 20 000 small-quantity hazardous-waste generators (SQHWGs) in the state of Florida. SQHWGs are generators that produce less than 1000 kg of hazardous waste in a calendar month. There were approximately 117 000 metric tonnes of small-quantity-generator (SQG) hazardous waste produced annually. Included in this total are over 43 000 tonnes of waste oils even though they were not regulated as a hazardous waste at the time of the survey. Approximately half of this hazardous waste is managed using the following methods: recycling, treatment, and disposal in permitted hazardous-waste-management facilities. However, large quantities of this SQG hazardous waste are disposed of in sanitary landfills and discharged to public sewers and these facilities are typically not designed to handle hazardous waste. These data indicate that there are potential environmental and human-health problems associated with the management of SQG hazardous waste in Florida as well as throughout the U.S.A.

Key Words—Hazardous waste, sanitary landfills, small-quantity generators, solid waste, public sewers, waste disposal, waste characterization, waste oils, U.S.A.

1. Introduction

In order to address the issue of SQHWGs, as well as other solid-waste concerns, the Resource Conservation and Recovery Act (RCRA) was enacted in the United States in 1976 and was amended in 1984. The RCRA provides a legal framework for coordinating federal, state, and local-government solid-waste management in the U.S.A. Subtitle D of the RCRA is concerned with waste-management facilities that are generally considered, or by regulations are defined, as facilities that manage non-hazardous waste. The Proceedings of the United States Environmental Protection Agency's (U.S. EPA) Working Meeting Concerning the Monitoring and Management of Hazardous Waste at RCRA Subtitle D Facilities examined the problems associated with the management of waste from SQHWGs at RCRA Subtitle D Facilities (U.S. EPA 1985). Also, the RCRA Subtitle D Report to Congress (U.S. EPA 1987) contains information on the national issues associated with SQHWGs in the context of the RCRA as amended. It was generally agreed that data on the production and manage-

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ment of small-quantity-generator (SQG) hazardous waste are needed in order to determine the problems associated with its generation and to formulate regulations that will minimize its impact on human health and the environment. This paper characterizes the types and amounts of SQG hazardous waste produced and how it is managed by approximately 20 000 firms and agencies in the state of Florida.

The RCRA regulates the management of both hazardous and non-hazardous solid waste in the U.S.A. Included in the hazardous-waste regulations developed under the RCRA are requirements for waste generators, transporters, and facility operators. A SQHWG is defined in Section 260.10, Chapter 40 of the *U.S.A. Code of Federal Regulations* as "a generator that generates less than 1000 kilograms of hazardous waste in a calendar month". The RCRA regulations, as of March 24 1986, define two categories of SQHWGs: (1) those generating less than 100 kg of hazardous waste in a calendar month, and (2) those generating between 100–1000 kg of hazardous waste in a calendar month. According to federal regulations, SQHWGs that produce between 100–1000 kg of hazardous waste in a calendar month must manage their waste at facilities designed and permitted under Subtitle C of the RCRA to accept hazardous waste. Generators that produce less than 100 kg of hazardous waste per month are not prohibited by federal regulations from disposing of their hazardous waste in Subtitle D facilities such as sanitary landfills. This category does not include generators, such as households and farms.

Hazardous waste is defined in Part 261, Chapter 40 of the *U.S.A. Code of Federal Regulations* as waste that is characteristically either corrosive, reactive, ignitable or toxic. Each of these four characteristics is defined in the RCRA regulations in terms of the values of certain physical or chemical parameters. These four characteristics have been used by the U.S. EPA and others to develop lists of specific chemicals as well as process-waste streams that have been determined to be "hazardous".

Counties in the state of Florida vary considerably in geographic size, population, economic profile, geology, hydrology, and the number and types of waste-management facilities available in the country. Because of this diversity, it is believed that the range of data on SQG hazardous waste in Florida is generally representative of the waste management practices used and the types and quantities of SQG hazardous waste produced throughout the U.S.A.

Although the research described in this article has been funded wholly or in part by the U.S. EPA through CR-813151010 to the Florida State University, it has not been subjected to Agency review and, therefore, does not necessarily reflect the views of the Agency and no official endorsement should be inferred.

2. Materials and methods

The SQG hazardous-waste data presented in this paper were collected as part of the Florida Local Government Hazardous Waste Assessment Program. This statewide program is administered by the Florida Department of Environmental Regulation (FDER) as required under Part VI of the Water Quality Assurance Act of 1983 (Chapter 83–310, Laws of the State of Florida). These data are being used by the U.S. EPA to evaluate the various problems associated with SQG hazardous-waste management (Herndon *et al.* 1988).

A major goal of the Florida Local Government Hazardous Waste Assessment Program is to address the problems associated with hazardous-waste mismanagement, particularly as this mismanagement relates to SQHWGs. The Florida Local Govern-

ment Hazardous Waste Assessment Program requires all counties in Florida to conduct assessments of hazardous-waste-related activities in their jurisdictions under guidelines developed by the FDER. An important component of each county assessment is a survey of SQHWGs. These surveys are to determine the types and quantities of hazardous waste generated and the methods used to manage these wastes by SQHWGs. Although the county surveys were designed to collect data from SQHWGs, some of the survey respondents generated more than 1000 kg of hazardous waste in a calendar month and, as such, are not SQHWGs. However, the waste produced by these larger-quantity hazardous-waste generators does not represent a significant portion of the total waste included in these survey data. We do not believe, therefore, that its inclusion significantly affects the overall results and conclusions of this paper.

The data are summarized according to 26 waste types, 14 waste-management methods, and 514 industries as defined by four-digit Standard Industrial Classification (SIC) codes (Office of Management and Budget 1987). A list of 26 general types of hazardous waste was developed by the FDER and was included on the survey form in order for survey respondents to identify RCRA-related hazardous wastes produced by their operations. The county surveys identified SQHWGs within certain industries using a list of 397 four-digit SIC codes. This list of SIC codes was assembled initially by the U.S. EPA's Office of Solid Waste for use in a national survey of SQHWGs (Abt Associates, Inc. 1985), and was subsequently expanded by the FDER to 397 industries, which included industries of particular significance to the state of Florida (e.g., Boat Building and Repairing, SIC code 3732), as well as those industries that generate waste oils. Even though waste oils are not presently regulated as a hazardous waste under the RCRA, they were included in the county surveys because there is concern relative to the environmental impacts of discarded waste oils. These data will help determine what quantities of waste oils are managed properly (e.g., recycled) as opposed to what quantities are managed in ways that have the potential to adversely affect human health and the environment (e.g., disposed of in Subtitle D sanitary landfills).

Some survey respondents changed the SIC code on the survey form sent to them to another SIC code that they felt more closely reflected their primary activity. These changes resulted in an increase in the number of SIC codes from the 397 industries initially included in the survey to 514.

The survey data were collected utilizing questionnaires sent through the mail or completed during on-site interviews. These surveys were conducted under a variety of agreements involving county governments, regional-planning agencies, private consultants, or a combination of these entities. The FDER co-ordinated the data collection activities of all counties in order to maintain consistency in the survey effort. These data were collected over the time period 1983-1986. The data collected from each survey respondent represents waste produced during one year of operation (i.e., annual data). The survey data were placed in a computer file and made available to us for analysis.

In examining the survey data in terms of the waste types generated by SIC codes, some anomalies were identified. These anomalies relate to the reported generation of, for example, dry-cleaning filters and photographic wastes by industries that typically do not generate these types of waste (e.g., plumbing, heating and electrical establishments, gasoline-service stations, and boat building, or repairing shops). These anomalies were not common and we believe that they did not significantly affect the overall distributions presented in this paper of the types and quantities of SQG hazardous waste produced and the practices used to manage these wastes.

3. Results and discussion

Table 1 shows the methods used to manage SQG hazardous waste in Florida. Fourteen specific waste-management methods were grouped into seven general waste-management categories. The management method most commonly used was "Recycling" which processed approximately 42 000 metric tonnes annually or 36% of the total SQG hazardous waste produced. The second management method most commonly used was "Sent to Sanitary Landfills" which accounted for approximately 27 000 metric tonnes annually or 23% of the total SQG hazardous waste produced. The third management method most commonly used was "Other Methods" which accounted for approximately 17 000 metric tonnes annually or 14% of the total SQG hazardous waste produced. "Other Methods" was an option included on the survey form; however, the survey respondents were not asked to identify what specific management practices were actually employed when the "Other Methods" category was used.

TABLE 1
Waste-management methods used by SQHWGs in Florida

Waste-management category	Annual amount of waste (metric tonnes)	% of category	% of total
(1) Recycling			
Sub-total:	41,562.3	100.0	35.5
(2) Sent to sanitary landfills			
Taken by hauler	25,705.1	96.0	
Taken by generator	1,069.6	4.0	
sub-total:	26,774.7	100.0	22.9
(3) Other methods			
Sub-total:	16,815.3	100.0	14.4
(4) Treatment			
Filtration	4,348.7	40.1	
Neutralization	3,842.5	35.5	
Incineration	1,131.9	10.4	
Burned or blended for fuel	1,515.2	14.0	
Sub-total:	10,838.3	100.0	9.3
(5) Discharged to public sewers			
Sub-total:	10,403.5	100.0	8.9
(6) Disposed on property			
Buried on property	2,338.7	40.5	
Discharged to septic tanks	1,837.2	31.8	
Disposed in pit, pond, or lagoon	1,266.8	21.9	
Injected into wells	331.0	5.7	
Sub-total:	5,773.7	100.0	4.9
(7) Sent to permitted facilities*			
Sub-total:	4,874.9	100.0	4.2
Total:	117,042.7		100

* Off-site commercial facilities permitted to handle hazardous waste under the RCRA.

Approximately 11 000 metric tonnes or 9% of the total SQG hazardous waste produced annually was managed by "Treatment" (Table 1). Treatment methods included "Filtration" (40% of treated SQG hazardous waste), "Neutralization" (36% of treated SQG hazardous waste), "Incineration" (10% of treated SQG hazardous waste), and "Burned or Blended for Fuel" (14% of treated SQG hazardous waste). Approximately 10 000 metric tonnes or 9% of the total SQG hazardous waste produced annually, was "Discharged to Public Sewers". In addition, approximately 6000 metric tonnes or 5% of the total SQG hazardous waste generated annually was "Disposed on Property" of the SQHWGs. Off-site commercial facilities permitted to manage hazardous waste under the RCRA received approximately 5000 metric tonnes or 4% of the SQG hazardous waste generated annually.

"Recycling", "Treatment", and "Sent to Permitted Facilities" represent SQG hazardous-waste-management methods that minimize the potential to adversely impact human health and the environment. "Sent to Sanitary Landfills", "Other Methods", "Discharged to Public Sewers", and "Disposed on Property" represent SQG hazardous-waste-management methods that have a greater potential to adversely impact human health and the environment. Therefore, from Table 1, it can be seen that approximately 49% or 57 000 metric tonnes of the SQG hazardous waste produced annually is managed in an acceptable manner while 51% or 60 000 metric tonnes is managed in a less acceptable manner.

Table 2 shows the types and annual amounts of SQG hazardous waste produced in Florida and the waste-management methods used to manage this waste. The waste type "Other" includes hazardous waste not reported as one of the other 25 types included on the survey form.

The largest quantity of SQG hazardous waste produced was "Waste Oils, Lubricants" which accounted for 35% or 41 000 metric tonnes of the SQG hazardous waste produced annually. Approximately half (21 000 metric tonnes) of this waste was recycled while 12 000 metric tonnes were disposed of in sanitary landfills. "Lead-Acid Batteries" accounted for 14% or 17 000 metric tonnes of the SQG hazardous waste produced annually. Most of this (10 000 metric tonnes) was recycled. "Spent Solvents" accounted for 10% or 12 000 metric tonnes of the SQG hazardous waste produced annually. Most of this was recycled (5000 metric tonnes) or disposed of in sanitary landfills (3000 metric tonnes). Significant amounts of "Acidic or Alkaline Wastes", "Rinses with Heavy Metals", "Sludges with Heavy Metals", "Photographic Wastes", "Other", "Spent Plating Wastes", "Dust with Heavy Metals", "Ignitable Paint Waste", and "Ignitable Wastes" were produced.

Approximately half of all of the waste recycled was "Waste Oils, Lubricants", while "Lead-Acid Batteries" accounted for 25%. The other major waste recycled was "Spent Solvents" which accounted for 11%. The major wastes disposed of in sanitary landfills were: "Waste Oils, Lubricants" (45%), "Lead-Acid Batteries" (12%), and "Spent Solvents" (11%). Approximately 30% of the waste treated was "Waste Oils Lubricants", while 18% of the waste treated was "Acidic or Alkaline Wastes", 13% was "Spent Solvents" and 12% was "Lead-Acid Batteries". The major wastes discharged to public sewers were "Photographic Wastes" (38%), "Rinses with Heavy Metals" (27%), and "Acidic or Alkaline Wastes" (20%). The major waste types disposed on the property of SQHWGs were "Sludges with Heavy Metals" (27%), "Acidic or Alkaline Wastes" (16%), "Waste Oils, Lubricants" (13%). The major waste types sent to permitted hazardous-waste-management facilities were "Sludges with Heavy Metals" (19%), "Spent Solvents" (19%), "Ignitable Paint Waste" (16%), "Spent Plating Wastes" (11%), "Waste Oils, Lubricants" (11%).

TABLE 2
Types and annual amounts (metric tonnes) of SQG hazardous waste produced in Florida by waste-management category

Waste type	Waste management category									
	Total waste		Recycling		Sanitary landfills		Other		Treatment	
	Amount	%*	Amount	%†	Amount	%†	Amount	%†	Amount	%†
Waste oils, lubricants	41,329.8	35.3	21,021.9	50.7	12,108.0	45.2	3717.8	22.1	3192.5	29.5
Lead-acid batteries	16,674.6	14.2	10,245.1	24.6	3100.7	11.6	1918.5	11.4	1328.4	12.3
Spent solvents	12,129.5	10.4	4516.7	10.9	3001.8	11.2	1510.4	9.0	1410.4	13.0
Acidic or alkaline wastes	9963.1	8.5	1761.5	4.2	985.4	3.7	2254.6	13.4	1949.6	18.0
Rinses with heavy metals	7571.1	6.5	688.0	1.7	922.5	3.5	1665.7	9.9	1048.4	9.7
Sludges with heavy metals	5979.1	5.1	254.9	<1.0	1318.0	4.9	1364.0	8.1	14.1	<1.0
Photographic wastes	5514.9	4.7	442.8	1.1	252.7	1.0	340.0	2.0	82.2	<1.0
Other	3224.4	2.7	484.5	1.2	1572.3	5.9	304.2	1.8	504.5	4.7
Spent plating wastes	2313.0	2.0	40.8	<1.0	49.9	<1.0	927.8	5.5	473.7	4.4
Dust with heavy metals	2287.5	1.9	752.4	1.8	996.5	3.7	462.8	2.8	1.1	<1.0
Ignitable paint waste	2117.8	1.8	474.6	1.1	505.6	1.9	213.9	1.3	115.4	1.1
Ignitable wastes	1492.8	1.3	41.7	<1.0	654.9	2.5	504.8	3.0	101.8	<1.0
Waste ammonia	866.7	<1.0	10.9	<1.0	4.8	<1.0	115.0	<1.0	377.1	3.5
Washing solutions	855.6	<1.0	183.3	<1.0	74.0	<1.0	147.3	<1.0	45.3	<1.0
Empty pesticide containers	743.8	<1.0	177.8	<1.0	290.2	1.1	189.0	1.1	13.9	<1.0
Other pesticide solutions	627.2	<1.0	61.7	<1.0	25.0	<1.0	66.3	<1.0	1.0	<1.0
Paint waste with heavy metals	626.2	<1.0	142.4	<1.0	319.9	1.2	108.9	<1.0	6.9	<1.0
Waste ink	617.0	<1.0	110.7	<1.0	125.0	<1.0	145.8	<1.0	69.6	<1.0
Cyanide wastes	604.2	<1.0	37.2	<1.0	25.6	<1.0	505.5	3.0	1.6	<1.0
Solvent still bottoms	594.9	<1.0	68.0	<1.0	165.4	<1.0	68.5	<1.0	17.6	<1.0
Waste pesticides	329.8	<1.0	1.8	<1.0	40.5	<1.0	197.1	1.2	41.6	<1.0
Waste formaldehyde	197.8	<1.0	<0.1	<0.1	19.5	<1.0	21.9	<1.0	5.8	<1.0
Dry cleaning filters	182.8	<1.0	6.4	<1.0	104.3	<1.0	32.9	<1.0	32.2	<1.0
Wood preservatives	133.0	<1.0	16.3	<1.0	102.9	<1.0	2.2	<1.0	0.6	<1.0
Waste explosives	55.7	<1.0	20.9	<1.0	9.1	<1.0	21.7	<1.0	3.0	<1.0
Spent solutions from dipping	10.4	<1.0	<0.1	<0.1	0.2	<1.0	8.7	<1.0	<0.1	<0.1
Total:	117,042.7	100	41,562.3	100	26,774.7	100	16,815.3	100	10,838.3	100
									5,773.7	100
									10,403.5	100
									4,874.9	100

* Percent of total SQG hazardous waste.

† Percent of SQG hazardous waste within waste-management category.

Table 3 shows the quantities of SQG hazardous waste distributed among the seven waste-management categories shown in Table 1, and over the industries (SIC codes) that generated these wastes. Table 4 provides a description for each of the industries (SIC codes) shown in Table 3. The first 15 industries shown in Table 3 as Group A produced almost 60% of the SQG hazardous waste generated in the State of Florida (each of the remaining 499 industries in the data base contribute 1% or less of the SQG hazardous waste produced). The 27 SIC codes in Group B of Table 3 account for another 17%.

The industries that produced the greatest quantities of SQG hazardous waste were Automotive services. The 12 categories marked in Table 4 together contributed over 45% of the total. No other category generated as much as 5%. Much of the waste generated by the first 15 industries is recycled; however, a significant portion of these wastes are managed in ways that have the potential to adversely impact human health and the environment. The industries that sent the most SQG hazardous waste to sanitary landfills were Automotive services and "Electronic Components, Not Elsewhere Classified". The industries that discharged the greatest volume of SQG hazardous waste to public sewers were "Automotive Repair Shops, Not Elsewhere Classified", "Photo-finishes Laboratories", and "Electro-plating, Polishing, Plating, Anodizing". The "Electronic Components, Not Elsewhere Classified" industry was the main user of permitted hazardous-waste-management facilities for the disposal of its SQG hazardous waste.

These data indicate that considerable quantities of SQG hazardous waste are produced in Florida and that much of this waste is not properly managed. From the discussion presented in the Introduction, it is believed that these data on SQG hazardous waste produced in Florida are generally representative of the types of SQG hazardous waste produced, as well as representative of the management practices used, by SQHWGs throughout the U.S.A. Therefore, based on these data, it is expected that there may be potential environmental and human-health problems associated with the management of SQG hazardous waste in the United States. Of particular concern is the amount of SQG hazardous waste disposed of in facilities not designed to handle hazardous wastes, e.g., the 27 000 metric tonnes annually disposed of in sanitary landfills and the 10 000 metric tonnes annually discharged to public sewers in the State of Florida.

4. Conclusions

A significant amount of hazardous waste is produced by SQHWGs in Florida. Approximately half of this waste is managed by methods (recycling, treatment, and disposal in permitted hazardous-waste-management facilities) that minimize the potential to adversely impact human health and the environment. Of particular concern is the large quantity of SQG hazardous waste disposed of in sanitary landfills and discharged to public sewers, since these facilities are not typically designed to handle hazardous waste.

The waste types, that represent the greatest quantities of hazardous waste produced by SQHWGs in Florida, are waste oils and lubricants, lead-acid batteries, spent solvents, and acidic or alkaline wastes. Even though waste oils are not presently regulated as a hazardous waste under the RCRA, they were included in these data because of the potential adverse impacts of these wastes on human health and the environment.

There are potential environmental and human-health problems associated with the management of SQG hazardous waste in Florida as well as throughout the U.S.A.

TABLE 3
Categories of waste-management methods used and amounts (metric tonnes) of waste generated by selected industries (SIC codes) in Florida**

SIC code	Waste management category															
	Total waste		Recycling		Sanitary landfills		Other		Treatment		Public sewers		Disposed on property		Permitted facilities	
	Amount	%	Amount	%	Amount	%	Amount	%	Amount	%	Amount	%	Amount	%	Amount	%
5541†	13 121.4	11.2	5199.4	12.5	4562.9	17.0	2058.2	12.2	731.2	6.7	306.9	3.0	207.0	3.6	55.8	1.1
7538†	12 039.8	10.3	6920.3	16.7	2942.9	11.0	792.7	4.7	676.5	6.2	529.9	5.1	105.0	1.8	72.5	1.5
5531†	7866.9	6.7	4451.5	10.7	1508.0	5.6	926.1	5.5	764.7	7.1	112.9	1.1	85.5	1.5	18.2	0.4
5511†	7410.6	6.3	3298.8	7.9	2342.2	8.7	369.4	2.2	927.2	8.6	157.0	1.5	264.4	4.6	51.6	1.1
7539†	6365.5	5.4	2626.7	6.3	1151.0	4.3	813.1	4.8	355.5	3.3	1045.8	10.1	339.2	5.9	34.2	0.7
3679	5014.9	4.3	590.7	1.4	890.8	3.3	128.1	0.8	1305.2	12.0	43.0	0.4	195.1	3.4	1862.0	38.2
7395	3067.3	2.6	718.2	1.7	163.0	0.6	48.7	0.3	36.5	0.3	1733.3	16.7	365.4	6.3	2.2	<0.1
9131	2290.5	2.0	887.6	2.1	364.5	1.4	290.3	1.7	147.5	1.4	34.9	0.3	547.8	9.5	17.9	0.4
5311	2194.8	1.9	1159.0	2.8	658.5	2.5	259.9	1.5	106.3	1.0	6.5	0.1	4.6	0.1	<0.1	<0.1
3471	2008.9	1.7	330.6	0.8	55.3	0.2	236.9	1.4	44.0	0.4	918.6	8.8	215.7	3.7	207.8	4.3
7531†	1771.5	1.5	716.7	1.7	351.0	1.3	665.1	4.0	14.8	0.1	1.9	<0.1	9.0	0.2	13.0	0.3
3662	1586.7	1.4	196.6	0.5	14.0	0.1	919.8	5.5	15.3	0.1	188.4	1.8	1.0	<0.1	251.6	5.2
1711	1278.1	1.1	233.6	0.6	405.6	1.5	175.4	1.0	2.2	<0.1	5.4	0.1	455.9	7.9	<0.1	<0.1
5093	1260.7	1.1	697.3	1.7	77.5	0.3	14.0	0.1	458.5	4.2	<0.1	<0.1	13.4	0.2	<0.1	<0.1
3079	1237.5	1.1	558.9	1.3	118.3	0.4	14.8	0.1	234.3	2.2	229.6	2.2	0.5	<0.1	81.1	1.7
4213†	1207.5	1.0	631.1	1.5	334.9	1.3	190.8	1.1	26.0	0.2	6.5	0.1	10.3	0.2	7.9	0.1
1611	1194.6	1.0	642.2	1.5	247.7	0.9	59.7	0.4	182.4	1.7	1.6	<0.1	54.4	0.9	6.6	0.1
4952	1174.2	1.0	95.9	0.2	534.8	2.0	68.8	0.4	<0.1	<0.1	<0.1	<0.1	474.7	8.2	<0.1	<0.1
7331	1149.6	1.0	375.9	0.9	51.4	0.2	0.1	<0.1	4.8	<0.1	<0.1	<0.1	350.9	6.1	366.5	7.5

7399	1134.1	1.0	212.9	0.5	195.6	0.7	507.1	3.0	53.1	0.5	150.1	1.4	1.7	<0.1	13.6	0.3
7512†	1003.5	0.9	203.9	0.5	92.6	0.3	672.2	4.3	19.1	0.2	5.8	0.1	5.7	0.1	4.2	0.1
5521†	962.3	0.8	407.4	1.0	236.3	0.9	183.4	1.1	9.2	0.1	4.1	<0.1	121.9	2.1	<0.1	<0.1
7699	931.9	0.8	464.1	1.1	291.7	1.1	29.3	0.2	16.8	0.2	2.1	<0.1	103.0	1.8	24.9	0.5
2851	840.1	0.7	332.0	0.8	121.3	0.5	37.2	0.2	45.4	0.4	<0.1	<0.1	1.5	<0.1	302.7	6.2
4911	822.6	0.7	505.6	1.2	19.8	0.1	113.1	0.7	172.9	1.6	<0.1	<0.1	2.3	<0.1	8.9	0.2
3732	817.7	0.7	415.5	1.0	254.6	1.0	78.3	0.5	12.6	0.1	<0.1	<0.1	1.1	<0.1	55.6	1.1
3691†	790.7	0.7	618.1	1.5	116.7	0.4	20.6	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	35.3	0.7
4212†	782.1	0.7	408.3	1.0	43.8	0.2	31.9	0.2	295.2	2.7	0.2	<0.1	2.7	<0.1	<0.1	<0.1
7333	768.7	0.7	135.5	0.3	56.2	0.2	14.3	0.1	9.7	0.1	542.9	5.2	10.1	0.2	<0.1	<0.1
3444	743.1	0.6	18.7	<0.1	60.8	0.2	153.4	0.9	474.9	4.4	4.1	<0.1	6.3	0.1	24.9	0.5
8999	683.7	0.6	122.8	0.3	191.0	0.7	67.5	0.4	215.1	2.0	36.6	0.4	0.3	<0.1	50.4	1.0
2899	663.7	0.6	33.4	0.1	0.1	<0.1	23.9	0.1	453.7	4.2	0.1	<0.1	0.2	<0.1	152.3	3.1
4511	646.4	0.6	25.4	0.1	384.3	1.4	235.3	1.4	1.0	<0.1	0.2	<0.1	<0.1	<0.1	0.2	<0.1
4582	645.5	0.6	300.3	0.7	242.7	0.9	61.1	0.4	15.8	0.1	13.8	0.1	6.4	0.1	5.4	0.1
7513†	638.7	0.5	212.1	0.5	130.3	0.5	17.2	0.1	157.2	1.5	13.6	0.1	108.3	1.9	<0.1	<0.1
1721	617.2	0.5	26.7	0.1	104.8	0.4	12.9	0.1	4.3	<0.1	454.3	4.4	3.9	0.1	10.3	0.2
2751	587.3	0.5	40.5	0.1	91.0	0.3	212.4	1.3	73.5	0.7	140.1	1.3	16.2	0.3	13.6	0.3
2032	587.2	0.5	6.2	<0.1	<0.1	<0.1	34.5	0.2	538.6	5.0	6.4	0.1	1.5	<0.1	<0.1	<0.1
3590	568.7	0.5	73.1	0.2	210.8	0.8	284.8	1.7	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
2711	564.4	0.5	36.1	0.1	21.2	0.1	41.0	0.2	4.9	<0.1	418.2	4.0	2.5	<0.1	40.5	0.8
3692	544.7	0.5	453.6	1.1	0.7	<0.1	<0.1	<0.1	<0.1	<0.1	10.6	0.1	<0.1	<0.1	79.8	1.6
8062	536.5	0.5	130.8	0.3	54.7	0.2	58.2	0.3	69.0	0.6	195.6	1.9	26.7	0.5	1.5	<0.1
Totals:	90 121.8	77.3	35 514.0		19 695.3		10 921.5		8674.9		7321.0		4119.7		3875.4	

* There are 514 Standard Industrial Classification (SIC) codes included in the survey data base. The 42 SIC codes grouped in this table comprise 77.3% of the total SQG hazardous waste produced annually in Florida. Each of the remaining 472 SIC codes contributes less than 0.5% of the total SQG hazardous waste generated.

† Automotive services, see Table 4

TABLE 4
Description of selected industries (SIC codes) shown in Table 3

SIC Code	Description
<i>Group A</i>	
5541*	Gasoline service stations, retail
7538*	General automotive repair shops
5531*	Automotive and home supply stores
5511*	Motor vehicle dealers (new and used)
7539*	Automotive repair shops, not elsewhere classified
3679	Electronic components, not elsewhere classified
7395	Photofinishing laboratories
9131	Executive and legislative combined
5311	Department stores
3471	Electroplating, polishing, plating, anodizing
7531*	Top and body repair shops, automotive
3662	Radio and television transmitting
1711	Plumbing, heating and air conditioning
5093	Scrap and waste materials, wholesale
3079	Miscellaneous plastic products, not elsewhere classified
<i>Group B</i>	
4213*	Trucking, except local
1611	Highway and street construction
4952	Sewerage systems
3731	Ship building and repairing
7399	Fire extinguisher charging services
7512*	Passenger car rental and leasing, without drivers
5521*	Motor vehicle dealers (used only)
7699	Repair shops and related services, not elsewhere classified
2851	Paint and allied products
4911	Electric services
3732	Boat building and repairing
3691*	Storage batteries
4212*	Local trucking without storage
7333	Commercial photography, art and graphics
3444	Sheet metal work
8999	Services, not elsewhere classified
2899	Chemical preparations
4511	Air transportation, certificated carriers
4582	Airports and flying fields
7513*	Trucking rental and leasing, without drivers
1721	Painting, paper hanging, and decorating, heavy construction, not elsewhere classified
2751	Commercial printing, letterpress and screen
2032	Canned specialties
3590	Miscellaneous machinery, except electrical
2711	Newspapers: publishing and printing
3692	Primary batteries, dry and wet
8062	General medical and surgical hospitals

* Automotive services.

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